

# **CITY OF HELENA STREETS DIVISION**



## **SNOW AND ICE CONTROL PLAN**



**SEPTEMBER 19, 2018**

**I. Purpose**

The purpose of the Snow and Ice Policy is to communicate the process and level of service for snow and ice control for the City of Helena. The City's streets are divided into emergency snow routes, priority 1, priority 2, priority 3 and local streets. This assures each roadway will be plowed at least once after each storm. Winter storms can be trying for all of us, motorists, pedestrians, residents and snowplow operators alike. The goal of the Streets Division is to clear snow and ice from our roadways as rapidly and efficiently as possible. This does not mean bare, black, dry pavement should be expected after a snowstorm. The aim of snow and ice control operations is to return road surfaces to safe winter driving conditions as soon as feasible within the framework of this policy, our resources, and weather conditions. Through proper use of storm forecasts, personnel, resources, and equipment, the desired result can usually be attained. However, flexibility is needed to adapt to the variety of circumstances and conditions during winter storm events.

**II. Plan Objectives and Goals**

The snow and ice control objectives of the City are to:

- Provide safe traveling conditions for pedestrians, bicyclists, and motorists.
- Provide cost effective snow and ice control services; and
- Assist Police, Fire, and Emergency Medical Services.

The City of Helena is fully committed, as staffing and equipment allow, to around-the-clock operations until all streets have been cleared at least once.

- Goals:
  - To the extent possible, no plow trucks should remain in the yard during and immediately after a major storm event.
  - Utilization of staffing and equipment resources from other Public Works divisions.
  - Utilization of on-call operator pool.

Circumstances may prevent or delay complete implementation of this plan.

**III. Responsibility**

The City of Helena is responsible for snow and ice control on city streets within the City limits. However:

- Some routes within the City are the responsibility of the Montana Department of Transportation (MDT); these routes are indicated on the route map.
- On-street parking can only be cleared when no vehicles are present and resources allow.
- Due to the oversize width of City equipment and lack of snow storage, alleys will not be plowed or sanded. In addition to alleys, the City does not remove snow and ice from sidewalks, private streets, driveways, or parking lots.

Every owner of property within the city fronting on or abutting a paved or brick sidewalk on public rights of way must remove and clear away, or cause to be removed and cleared away: any snow or ice from that portion of the sidewalk in front of or abutting their property, from all portions of abutting ADA curb ramps and bulb outs, and from driveway aprons on rights of way that must be crossed for pedestrian travel. **City Code 7-8-1 SNOW AND ICE REMOVAL FROM SIDEWALKS**

City of Helena ordinance 3243

To allow for snow plowing and snow removal on city streets, whenever two inches (2") or more of snow is predicted to accumulate by the National Oceanic and Atmospheric Administration, vehicles may not be parked on designated emergency snow routes between the hours of 8:00 am and 5:00 pm. Parking on Benton Avenue between West Lyndale Avenue and Bishop Carroll Drive, and East Broadway between North California Street and Saddle Drive, and East Broadway between North Montana Avenue and North Sanders Street is permitted between the hours of 5:00 a.m. and 8:00 p.m. but is prohibited from 8:00 p.m. to 5:00 a.m. (Ord. 2112, 1-8-1979; amend Ord. 3243, 10-29-2018)

All vehicles parked on designated emergency snow routes during prohibited hours whenever two inches (2") or more of snow is predicted to accumulate may be towed and stored at the expense of the registered owner of the vehicle. (Ord. 2112, 1-8-1979; amend Ord. 3243, 10-29-2018)

Any trailer, recreational vehicle, boat, or other stored items parked within the public right-of-way between November 1 and April 15 may be towed and stored at the expense of the registered owner of the vehicle. Ord. 2326, 12-5-1983; amend Ord. 3243, 10-29-2018)

#### **IV. Level of Service and Expectations**

The expectation is that we will keep all of the city streets sufficiently passable during and following winter storm events. To achieve this, the City will provide, to the extent reasonably possible, effective and efficient measures consistent with generally accepted standard practices to restore mobility. Due to the many variables associated with winter weather, each event is unique.

- Factors that may influence when and what measures we use include:
  - Air and pavement temperatures prior to and during the storm, wind speeds and direction, precipitation rates and types, moisture content, time of onset, duration and traffic activity.
  - Availability of equipment, personnel, and materials.
- Snow and ice control measures are used to achieve the safest possible traffic movement on public streets within a reasonable time period. Efforts are first concentrated on the main arterials, collectors, and around critical facilities that carry most of the traffic. During large storm events, clearing the roadways will take longer.
- No sanding is done during a snowfall, unless extreme conditions dictate, because additional snow covers the sand and when snowplowing is done the sand is scraped from the roadway.
- City snow plow crews will attempt to avoid placing snow on driveways, although that will not always be possible. Residents and businesses may need to plan for additional shoveling or plowing if snow is plowed onto driveways, or they may desire to wait until snow crews have completed their first pass before shoveling or plowing.
- Location of where snow will be plowed to:
  - For streets with boulevard sidewalks, the snow will be plowed to the edge of the street and snow will be deposited on boulevards.
  - For streets with curbside sidewalks, the snow will be plowed to the edge of the street within approximately two (2) feet of the curb face, but not onto the sidewalk.

- The best level of service is when our major streets are clear of snow and ice and residential streets have been plowed and sanded. Reaching this objective takes time which can be affected by weather conditions, traffic, parked vehicles, and resource availability.
- The minimum level of service is when through-lanes, left-turn lanes, and intersections on major streets are clear of excessive snow and are down to packed snow cover. Some areas of the roadway may be left unplowed to clear other roadways to facilitate movement of traffic.

## V. **Implementation**

The following policies and procedures outlined will be in effect when weather conditions could cause accumulations of snow or ice within the City and will be in place during the normal winter season.

- Operations:
  - Normal business hours Monday through Friday are 4:00 am to midnight.
  - For the purpose of snow and ice control, the City is divided into eight areas: Downtown, upper East, lower East, upper West, lower West, Dogleg, Northside and Highway 12. The maps in Appendix II identify these areas.
  - Streets Superintendent/Supervisor will track incoming weather systems.
  - Issuance of a Winter Storm warning or watch will alert operators that the 12 hour work schedule may be implemented.
  - After regular hours Helena Police Department will assist in advising of any changing conditions not forecasted.
  - Snow operations will commence based on forecasts and observations by the Streets Superintendent/Supervisor.
    - General Decision Guidelines:
      - Snow accumulation, or expected accumulation, of 1 to 2 inches or more;
      - Icing of streets is occurring or likely to occur, creating a hazard to vehicular traffic;
      - Time/Rate of snowfall in regards to peak travel times.
      - Snowfall has accumulated on non-priority streets in amounts sufficient to halt or block traffic. This typically means an accumulation exceeding eight inches (8") on local streets.
  - Snow and ice control operations are expensive and involve the use of limited personnel and equipment. During snow storms lasting longer than 24 hours, personnel are divided into crews working 12-hour schedules depending on the schedule that they are assigned. The use of weather reports from the National Weather Service and other forecasting tools will be used concurrently to evaluate existing street conditions to determine the appropriate response.
- Snow Plowing Procedures
 

Routes will be plowed in a way to minimize traffic obstructions. The center of the roadway will be plowed first. The snow is pushed from left to right. The discharge shall go onto the shoulder area of the street approximately two feet from the curb for curbside sidewalks and as close as possible to the curb along boulevard sidewalks. In times of extreme snowfall and ice, streets will not always be able to be completely cleared.

- Plowing will normally begin when one or more inches of snow accumulate.
  - Condition 1: Slick or icy spots will be sanded to reduce the hazard or danger to vehicular traffic. Particular attention will be given to areas near stop signs, traffic signals, and hills, especially those on or adjacent to streets on the emergency snow route system.
  - Condition 2: When snow accumulation occurs, snow removal crews will commence plowing on emergency and priority routes. The goal is to keep these streets open to travel so that emergency services can reach critical facilities with minimal delay. Snow will be plowed to the curb line on emergency snow routes if the route has boulevard sidewalks. Plowing of local streets will commence once the emergency and priority routes are cleared.
- Operators will plow whenever possible to make right turns, this helps keep the intersections from developing a berm for cross traffic to go over.
- Operators will plow at speeds not to cause damage or injury to property or people by the spoils coming off the blade.
- Care will be exercised by operators to minimize the blocking of driveways and burying sidewalks. The Street Division, however, recognizes that blocking driveways and burying sidewalks is at times unavoidable. The burden is then with the property owner or occupant to clear them.
- Each operator assigned to a specified snow area will monitor the conditions and maintain communication with the assigned supervisor to report on progress and the effectiveness of the plowing efforts.
- Supervisors will direct and coordinate work crews to complete snow and ice removal in accordance with established priority ratings.
- During conditions that exceed the Street Division's capability of maintenance, on-call and private contractors will be contacted for equipment and manpower.
  - Contractors' equipment used would consist of motor patrols used for snow plowing and trucks for hauling operations. However, under extreme snowfall conditions, loaders could assist City operations in snow removal. In situations of extremely heavy snowfall a coordinated effort between the contractors and city personnel would be necessary. This could be done with the use of our existing emergency snow route maps and normal operating procedure using the contractor's equipment to plow and the city equipment to follow and maintain. This effort will be used until roads are passable and the safety issues are mitigated.

## **VI. Priorities**

The City of Helena receives an annual average snow fall of 38.1 inches. Snowfall is often accompanied by winds and sub-zero temperatures. This plan recognizes that it is not possible to remove all of the snow simultaneously from all streets.

- During snow/ice conditions, calls from the Police and Fire Departments regarding accidents, medical or other emergency situations are given top priority. Upon request of the Fire/Police/Medical, the Streets Division will provide assistance as necessary.
- Priorities are set based upon traffic volume, public safety, and access to emergency facilities and critical facilities. During major storms, crews will plow continuously and sand. All streets in Helena are prioritized into groups for conducting snow

plowing operations, and snow routes are also color coded for easy identification. Occasionally multi-lane roads may require tandem plowing; this is a judgment call as conditions warrant. If this becomes necessary, employees will contact the on-duty supervisor before leaving assigned route to provide assistance in an adjoining route. The following summarizes the snow removal priorities.

- **Emergency Snow Routes – Red:** These streets are given first priority since they provide the interconnecting link from all corners of the City. Also included are streets that provide access for emergency services such as Fire Stations, Hospitals and Police Department.
  - Streets designated as emergency snow routes will be signed as such in the street right-of-way.
  - The purpose of this designation and signage is to alert the public that these streets are to be kept clear of parked vehicles during designated times and/or days to prevent interference with snow and ice control operations.
  - Vehicles parked along emergency snow routes in the event of snow accumulation shall be moved in accordance with the snow policy or the vehicle may be towed at the owner’s expense.
- **Priority Routes – Dark Blue, Yellow and Green:** These streets are typically collector roadways that connect to arterial roadways and local streets.
- **Local Streets** – These streets will be plowed after the emergency snow and priority routes are passable. The first local streets to be plowed will be primary streets and loop streets through subdivisions. This plan allows residences to be in close proximity of a plowed street in the shortest amount of time.
- **Towing:** See City Ordinance 3243, 10-29-2018
- **Special Requests:** Persons who have questions about snow and ice control or unsafe winter driving conditions should contact the City of Helena Street Division at 447-1566. Calls received by the Street Division during or after a winter storm will be logged in order to provide a record.
  - Since the Street Division receives a large number of special requests during and after a winter storm, it is not possible to dispatch snow and ice control equipment immediately upon request. The Supervisor shall substantiate special requests by means such as:
    - Radio messages from equipment operators, police and/or dispatch;
    - Information from the Street Superintendent or Supervisor;
    - Multiple requests from the same general area verified by a Supervisor.
  - Once a request is determined to be valid, the supervisor will dispatch the appropriate response except in cases of extenuating circumstances. The response action will depend on resource availability and the number of special requests to be dealt with.
- The road network consisting of the emergency snow and priority routes will be maintained to the extent possible with the maximum service level. Local streets will be maintained as conditions allow but the goal is the maximum service level.

## **VII. Delays in Service**

Removal of snow and ice is a difficult task. It is extremely rough on the equipment and on personnel. Delay of some services is inevitable.

- At least one or more of the following situations may delay all or some of the services provided during snow events:
  - Vehicles parked or blocking the street. Vehicles will be towed in designated areas along emergency snow routes when snow has accumulated or when they impede snow plowing operations.
  - Equipment breakdowns. Mechanics are on call for emergency repairs. Unfortunately some repairs require parts to be ordered or delivered from outside the city. Extreme storm events may cause delays with delivery of parts. The city endeavors to get the parts delivered as quickly as possible.
  - Personnel shortage:
    - Illness or injury may leave some areas unmanned until a temporary driver can be activated.
    - Depending on the duration of the storm and amount of snowfall, operations can extend for several days. This causes fatigue on the operators and may result in temporary disruption in service as safety is a priority. Contingency plans are in place to provide for temporary snow plow drivers.
  - Timing of the storm – depending on the time of day, plowing operations can be impeded by traffic and/or parked cars, trailers, and RV’s.
  - Snow being placed on the street by adjacent property owners.
    - By ordinance, property owners or building occupants are prohibited from placing snow and ice on public streets and alleys. Driveways, alleys, and parking areas in any area shall be cleared so that snow and ice from such areas are not placed in the public streets.
  - Weather so severe that life and safety requires supervisors to suspend operations.
  - Unforeseen conditions and emergencies.
- Some of these delays are unavoidable and caused by forces beyond our control, and may require the City to alter its procedures.

**VIII. Snow Removal**

Snow removal involves plowing snow to the center of the street where it is loaded into trucks with a snow blower or frontend loaders. This activity is limited due to the high cost and manpower demands associated with this process.

- Snow removal is done selectively using the following criteria:
  - Access Parking
  - Provide additional snow storage
  - Facilitate traffic movements
- This operation is not started until plowing and sanding of all emergency, priority routes and local streets has been completed.

**IX. Materials Used**

- Winter Sand – the city uses sand material mixed with a 5% salt ratio. This will prevent the sand from freezing and becoming unworkable. All sanding trucks are equipped with liquid dispensing tanks that apply a minimum amount of mag-chloride to the sand. This enables the sand to stick to any icy surface. Sand is primarily used to provide traction. Sand can be packed down into any snow pack present which requires reapplication.
- Magnesium-Chloride (De-icer) – The city uses a chemical deicer (magnesium or calcium chloride) with a rust inhibitor agent in lieu of straight road salt. The liquid application can occur in temperatures as low as 10 degrees Fahrenheit.

- Ice Slicer® - Is a granular de-icing product.
  - Ice-Slicer® is 10 times as expensive as winter sand and about 2 times more expensive than mag-chloride. It is for these reasons the following criteria will be used before using Ice-Slicer®:
    - Lives and/or property at risk
    - Superintendent/Supervisor authorization

**X. Immobilization/ Natural Disaster (Record Snowfall)**

- During a natural disaster of this nature, there will be a time frame of total immobilization throughout the city. During such an occurrence, not only are the streets impassable but many other factors may lead to confusion such as loss of telephone, power and heat.
- The most important step during a disaster of this nature would be keeping the public informed, reassuring everyone that the Street Division is working and that more equipment is on the way. Emergency travel only notifications should be broadcast and a status report as to road conditions and plowing operations should be given to the public twice daily.
- Vehicles should either be removed from the streets or be flagged on the antennas, as snow plowing could result in some vehicles getting buried in the process.
- Emergency areas would be cleared by the various agencies using the eight areas previously set as guidelines. The Street Division would implement the Winter Schedule providing 24-hour coverage and coordination of efforts. Contracted crews could begin snow plowing or removal efforts but they are not equipped to sand cleared streets. At this point, City employees directing the operation could provide the necessary sanding of intersections and inform a central information center as to what streets are sanded and passable to the general public. The advantages of using our own Street Division employees to direct the initial operation is their familiarity with the snow routes and the fact that they could maintain radio communication, thus allowing us to keep the public informed on the progress being made.
- Snow removal efforts by private businesses may also present some problems. Our present storage area is inadequate for any type of record snowfall. Areas to be considered for storage could be:
  - Batch Field and behind Bill Roberts Golf Course;
  - Henderson Street ponds (no blockage of channels or culverts);
  - Ryan Field;
  - Fairgrounds.
- Caution should be exercised when storing snow in areas of retention ponds or natural drainage areas as a sudden freeze situation could further complicate matters.

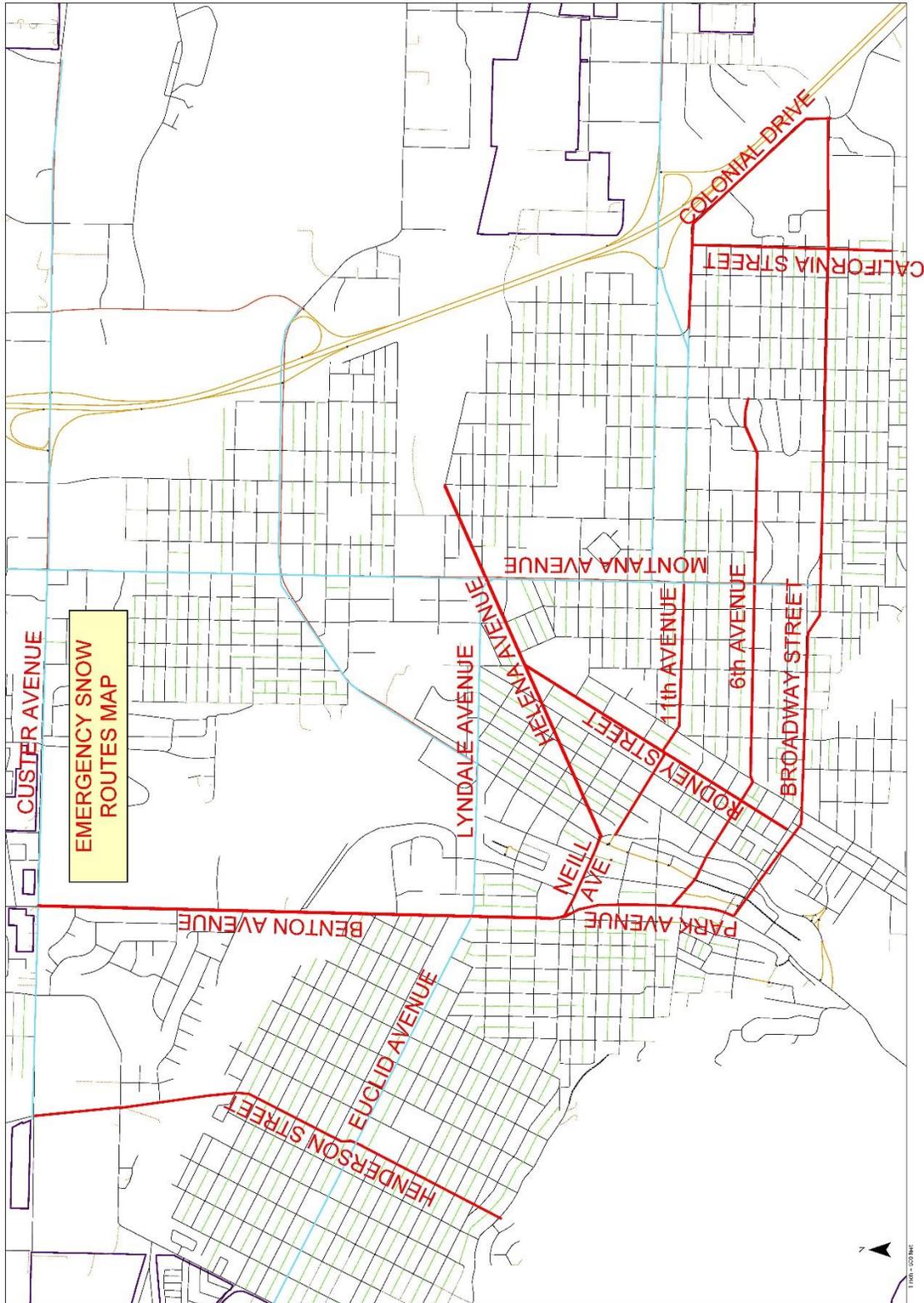
## **XI. Snow Response Equipment**

- All vehicles and equipment utilized in the Snow and Ice Control Plan are inspected for readiness and repairs in advance and as needed during the snow season by Fleet Services to ensure efficient operations for snow removal service.
  - The available equipment for snow and ice control
    - two tandem axle ten cubic yard dump trucks with plows and sanders
    - six single axle five cubic yard dump trucks with plows and sanders
    - one single axle deicer truck with a plow
    - two 4x4 mountain plow trucks with sanders
    - one single axle 1½ ton four wheel drive truck with plow and sander
    - two single axle four wheel drive pickup trucks with plows and sanders
    - two road graders with snow gates
    - one snow blower

## **XII. City of Helena Manpower and Work Schedules**

- The Street crew consists of 10 full time operators and 1 full time supervisor
- Traffic and Fleet Division can be called upon for support and additional operators.
- Normal Work Schedules include:
  - 4:00 am - 12:30 pm – staffed by two operators
  - 7:00 am - 3:30 pm – staffed by six operators
  - 3:30 pm - 12:00 am - staffed by two operators
- Winter Storm work Schedule (provides 24 hour coverage)
  - 4:00 am - 4:30 pm – staffed by two operators
  - 7:00 am - 7:30 pm – staffed by six operators
  - 3:30 pm - 4:00 am - staffed by two operators

# APPENDIX I SNOW ROUTES MAP



# APPENDIX II SNOW PLOWING AREAS MAP

